INSTALLATION OF NEW AIRNET STATIONS

Purpose

This Meteorology and Air Quality Group (MAQ) procedure describes the procedure for installing new AIRNET stations.

Scope

This procedure applies to the individual assigned to install and set up a new sampling station for the Meteorology and Air Quality Group ambient air sampling network (AIRNET) system.

In this Procedure

Hazard Control Plan

The hazard evaluation associated with this work is documented in Attachment 1: Initial risk = **low**. Residual risk = **low**. Work permits required: none. First authorization review date is one year from group leader signature below; subsequent authorizations are on file in group office.

Signatures

Prepared by: _____ Alice Baumann, MAQ	Date: 6/17/02
Approved by: _____ Dave Fuehne, Rad-NESHAP Project Leader	Date: 6/27/02
Approved by: _____ Craig Eberhart, Air Quality Monitoring Project Leader	Date: 6/17/2002
Approved by: _____ Terry Morgan, QA Officer	Date: 6/17/02
Work authorized by: _____ Jean Dewart, MAQ Acting Group Leader	Date: 7/1/02

07/11/02

General information about this procedure

Attachments

This procedure has no attachments.

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	2/5/97	New document.
1	04/23/98	Remove reference to procedure ESH-17-220; add bullet in "Adding the new station to the system."
2	2/2/99	Added requirements for wearing safety shoes when moving pumps, station housings, or timbers.
3	2/22/00	Added steps for installation of ground rods and silica gel holders. Other minor editorial changes.
4	7/30/01	Added reference to study of particle collection efficiency and made other minor changes.
5	7/2/02	Quick-change revision to address soil disturbance requirements.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- MAQ AIRNET personnel assigned to install a new station
- All MAQ project leaders responsible for AIRNET

Training method

The training method for this procedure is on-the-job training by a previously trained individual and is documented in accordance with the procedure for training (MAQ-024).

Prerequisites
(continued on next page)

In addition to training to this procedure, the following training is also required prior to performing this procedure:

- MAQ-202, "Environmental Sampling of Airborne Particulate Radionuclides"
- MAQ-204, "Sampling of Ambient Airborne Tritium"
- MAQ-205, "Calibration of Air Sampling Stations"
- Rad Worker training
- CPR and First Aid
- ESH-13 training "Electrical Safe Work Practices for Nonelectrical Crafts Workers" (course #12175)
- Applicable site-specific training

General information about this procedure, continued

Prerequisites, *continued*

Periodically review the field safety information in the New Employee Handbook (see MAQ-032).

References

The following documents are referenced in this procedure:

- MAQ-024, "Personnel Training"
- MAQ-032, "Orienting New Employees"
- MAQ-202, "Environmental Sampling of Airborne Particulate Radionuclides"
- MAQ-204, "Sampling of Ambient Airborne Tritium"
- MAQ-205, "Calibration of Air Sampling Stations"
- MAQ-207, "Evaluation of AIRNET Sampler Sites Against Siting Criteria"
- LA-UR-00-3091, "Performance Evaluation of LANL Environmental Radiological Air Monitoring Inlets At High Wind Velocities Associated With Resuspension"

Note

Actions specified within this procedure, unless preceded with "should" or "may," are to be considered mandatory guidance (i.e., "shall").

Installing a new AIRNET station

Identify a new station

A group **project leader** may request AIRNET personnel to install a new station. The **project leader** will take AIRNET personnel to the site of the planned installation.

Siting evaluation

Ensure the station has been sited according to MAQ-207 and given a name, a master site number, and a 2-digit local station number.

For stations on private property

Contact the appropriate **project leader** and ensure negotiations are completed with private land owners, if applicable, on the location of the station, color of the housing, etc.

Equipment and materials needed

Collect the materials and tools listed below:

- 4 x 4 timbers (from Ace Hardware on DP Road)
- lag bolts (size 5/16", 3" long) and flat washers
- ratchet set and hammer
- AIRNET housing with the SAIC module (kept at TA-54)
- air sampling pump
- calibrators (for silica gel and air filter flows; see MAQ-205)
- level

Ensure the height of the access door is in the breathing zone (about 5 to 6 feet high).

Required safety equipment

Wear steel-toed shoes anytime you are carrying or lifting pumps, station housings, timbers, or any other heavy equipment or supplies.

Safety in the field

Review the field safety concerns in the block about Worker Safety in procedure MAQ-202. This reminds you about hazards of thunderstorms, working alone, falling, and electricity.

Installing a new AIRNET station, continued

Setting up the housing

Bolt the 4 x 4 timbers to the legs of the housing by using the ratchet set (start bolt with hammer). Check the level of the ground surface; if needed, use shovel to level the ground (excavation permit is required). Do not install the pump until the electricity has been connected.

Getting electricity to the new site

Work with the appropriate project leader as necessary for this step. To request an electrical connection to the new station, contact the following people to request electricity. Electricians will install the wires, connect the outlet inside the housing, and install the ground rods (an excavation permit is required for the ground rods).

Location	Contact
On Lab property	Facility manager
On County property	Los Alamos County
On Indian pueblo land	Appropriate pueblo contact
On private land	Johnson Controls, Inc.

Equipment and materials needed

Collect the materials and tools listed below:

- air sampling pump
- stainless steel exhaust tubing
- filter holder (prepared according to MAQ-202)
- silica gel cartridge (prepared according to MAQ-204)
- calibrators (for silica gel and air filter flows)
- 2 padlocks with same key core as other station locks
- level
- station number label and disconnect notice

Set up the station and pump

After the electricity has been connected, collect the materials and supplies listed above and complete the installation. The orientation of the station is not critical, though it is preferable that the front access panel faces the source of interest (LA-UR-00-3091).

NOTE: The sampler housings located at TA-54 may already contain the control panel and some fittings and hoses.

Step	Action
1	If necessary, install the PVC holder for the silica gel cartridge in the floor of the housing.

Steps continued on next page.

Installing a new AIRNET station, continued

Step	Action
2	Put the pump inside the housing, to the left of the control panel.
3	Connect the silica gel vacuum hose from the module (already attached to front of module) to the silica gel cartridge and install the silica gel cartridge in its holder on the floor of the housing.
4	Install the filter head.
5	Attach stainless steel exhaust hose from the outlet on the vac pump to the outlet on the floor to the rear of the housing.
6	Attach the vacuum hose coming from the back of the module to the pump inlet.
7	Plug in the pump to the outlet inside the housing.
8	Calibrate the silica gel and filter flow according to procedure MAQ-205.
9	Lock both sides of the housing with a padlock cored the same as the other housing locks.
10	Label the housing with its unique station number and the power-off notice label with the group phone number.
11	Document the housing installation, calibration, and start-up time and date in the field logbook.
12	Recheck the housing with the level.
13	Determine the coordinates of the new location, using either map techniques or a GPS unit.

Adding the new station to the system

The new station's identification number and location name must be added to the appropriate records:

- Request a revision to MAQ-202 to reflect the new location in the list of stations.
- Inform the AIRNET data manager to add the new station (and the coordinates determined in step 12 above) to the Access database of locations.
- Request that the Project Manager and the Chemistry Data Coordinator revise the clumping paperwork and the shipping documents for filters, tritium, and composites.

Records resulting from this procedure

Records

The following records are generated as a result of this procedure:

- entries in the field log book
- new or edited records in the AIRNET station location database

HAZARD CONTROL PLAN

1. The work to be performed is described in this procedure.
"Installation of New AIRNET Stations"

2. Describe potential hazards associated with the work (use continuation page if needed).

Lifting Injuries--lifting pumps in/out of air sampling station; lifting/moving new housing and materials (timbers).
Abrasions and bruises from moving pumps, housing, using hand tools, and moving/handling materials (timbers)
Falls/tripping
Animal Injuries (snakes, spiders, mountain lions, etc.,)
Weather (lightning)
High Explosives testing (TA-15, TA-16, TA-49, etc.)
Radiation Areas (TA-54- Area-G, TA-16, etc.)
Electrical shock in wet conditions
Dropping materials on feet

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01.0, section 7.2)

Abrasions /bruises from moving pumps, housings and materials--Occasional/Negligible = Minimal
Lifting Injuries--lifting pumps and housings --Occasional/Moderate = Low
Falls/Tripping - Moderate/Occasional = Low
Animal Injuries - Critical/Remote = Minimal
Lightning - Catastrophic/Remote = Low
Entry into High Explosives testing Areas -- Critical/Remote = Minimal
Entry into posted Radiation/Controlled areas -- Negligible/Remote = Minimal.
Electrical shock in wet conditions -- Catastrophic/Remote = Low
Dropping materials onto feet -- Critical/Improbable = Low

Overall *initial* risk: ☐ Minimal ☒ Low ☐ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:
☐ None ☒ List: Work Permits required? ☒ No ☐ List:
LIR-402-706-01 "Personnel Dosimetry"
LIR-402-718-01 "Radiological Training"
National Fire Protection Code -- for use of electrical GFCIs
LIR 402-600-01.0 "Electrical Safety" for all electrical hazards
29CFR1926.500, Subpart M, Section 502, "Fall protection"

HAZARD CONTROL PLAN, continued

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Abrasions/bruises from moving pumps and materials -- Use common sense to avoid these injuries; also covered under Employee Orientation training

Lifting Injuries -- lifting pumps and housings -training in proper lifting techniques.

Falls/tripping -- the MAQ Employee Orientation includes training and awareness of tripping and falls.

Animal Injuries -- same as above.

Lightning -- same as above.

Entry into High Explosives testing Areas -- existing controls are stringent and not easily bypassed.

Entry into posted Radiation/Controlled areas -- Area-G and TA-15 controls are stringent and not easily bypassed.

Electrical shock in wet conditions -- all stations have been retrofitted with GFCI (ground fault circuit interrupts)

Dropping materials onto feet -- Steel-toed shoes or boots are required anytime pumps, station houses, timbers, or other heavy equipment is moved.

6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):

☒ Group-level orientation (per MAQ-032) and training to this procedure.

☒ Other → See training prerequisites on procedure page 3. Any additional describe here:

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01.0, section 7.3.3) is (check one):

☐ Minimal ☒ Low ☐ Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):

☐ None ☒ List:

For all lifting, trips, falls, dropped pumps, burns, abrasions, electrical shocks and animal related injuries, provide first aid and see that injuried person is taken to ESH-2 or the hospital. Follow all site-specific emergency plans for any radiation or explosives emergencies.

Signature of preparer of this HCP: This HCP was prepared by a knowledgeable individual and reviewed in accordance with requirements in LIR 300-00-01 and LIR 300-00-02.

Preparer(s) signature(s)	Name(s) (print) /Position	Date

Signature by group leader on procedure title page signifies authorization to perform work for personnel properly trained to this procedure. This authorization will be renewed annually and documented in MAQ records. Controlled copies are considered authorized. Work will be performed to controlled copies only. This plan and procedure will be revised according to MAQ-022 and distributed according to MAQ-030.